SYSTEM AND METHOD FOR BENEFIT PLAN COST ESTIMATION

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FIELD OF THE INVENTION

A computer-based method and system to enable the design of a plurality of

benefit plans to be offered as a menu of alternative selections to a given participant population

and for preferably determining the cost of sponsoring the menu of such plans for the participant

population by preferably predicting utilization for each of the plans based upon, preferably, one

or more of:

1) historical utilization data for the population, combined with projected plan

selections based upon presumed participant objectives, such as, for example, cost minimization;

2) survey data from a sample of the given population relating to (a) expected

benefit utilization and/or (b) plan preference criteria; and

3) survey and/or historical data from preexisting statistical samples exhibiting

analogous demographic, medical or attitudinal characteristics to the given participant population

regarding (a) benefit utilization and/or (b) plan preference criteria.

BACKGROUND OF THE INVENTION

Benefit plans which provide partial or complete reimbursement of expenditures incurred by participants in the plan are commonly offered by employers, associations, commercial entities and the like, which sponsor such plans as fringe benefits for employees or

5   members or as a commercial service available to the general public. These benefit plans comprise a wide range of plan design options, including, for example, types of expenditures covered by the plan, limits on reimbursements to the participants and payments made by the participants for coverage by the plan. Potential sponsors of benefit plans are often constrained by cost limitations in determining the design options in the plan or plans the sponsor offers to its

10   participants. Uncertainty in future cost expectations frustrates the efforts of sponsors to provide their participants the most desirable plan design options within given cost constraints. Because offering participants a choice between multiple plans having different plan design options exacerbates the resulting future cost uncertainty, sponsors are reluctant to undertake this approach, thus denying sponsors the ability to offer their participants access to a variety of

15   benefit plans having plan design options most closely tailored to the participant's needs.

SUMMARY OF THE INVENTION

The present invention provides a new and unique process for, among other things, preferably developing a plurality (menu) of proposed benefit plans, and, according to the plan design options within each plan, to determine the expected utilization of each of the plans by the

20   given participant population. Using the expected utilization data derived from the unique process, the present invention also preferably allows the sponsor to determine the resultant total cost to the sponsor of offering the array of plans in the menu. Through initial plan development

and successive iterations of 1) cost determination, 2) cost evaluation, and 3) plan design option

modification, a plan menu offering maximum plan flexibility for participants at an optimum cost

to the sponsor is achieved. The modification of plan design options to attain the sponsor's

predetermined target cost can be accomplished selectively by the user, or alternatively, may be

5   conducted automatically and repetitively, as necessary, according to a predetermined

methodology embodied in a computer processing function.

The present invention can also be used by a participant or prospective participant

to select and/or modify plan design options and their associated values in order to design a

benefit plan specifically tailored for the individual participant. By using historical or other

10   utilization data input by the user, the present invention also preferably allows the participant or

prospective participant to determine the cost of participating in one or more plans in a menu.

Through successive iterations of 1) cost determination, 2) cost evaluation, and 3) plan design

option modification, a plan offering desired plan design options at an acceptable cost can be

accomplished selectively by the user. Alternatively, this process may be conducted

15   automatically and repetitively, as necessary, according to a predetermined methodology

embodied in a computer processing function.

The present invention can preferably be utilized in applications wherein

contingent benefits are offered to participants as part of a plan which is underwritten (funded) by

a sponsor, to provide medical, health, dental, vision, prescription drug and other products and

20   services. The invention may also preferably be used for insurance benefits covering life,

casualty, liability and pet health care losses. The invention may preferably be used to compile a

menu of plans with a projected sponsorship cost approximating a target outlay of funds the

sponsor has budgeted for an associated participant population, such as the amount an employer may budget as a fringe benefit provided to its employees. A sponsor's objectives may include, for example, meeting a fixed budget amount for total benefits expenditures, achieving a target average cost per participant, or meeting a target cost sharing ratio, such as the sponsor paying

5   80% of costs of participants' prescription drugs, with the remaining 20% of costs borne by participants. Alternatively, by allowing manipulation of plan design options to create plans which generate payments by the participants in excess of the sponsor's costs, such as periodic fixed contributions paid to the sponsor by plan participants and/or per transaction copayments paid by the participant, the invention can be used to fashion a menu which an entrepreneurial

10   sponsor may offer to a predetermined market segment with an expectation of generating a profit for the sponsor.

The present invention can also be used by a participant or prospective participant to estimate the cost of participating in one or more plans having given plan design option values. Using this cost estimation information, a participant or prospective participant may select and/or

15   modify plan design options and their associated values in order to create a benefit plan specifically tailored for the individual participant, preferably to obtain a plan having a predetermined target cost to the participant.

Broadly, in one aspect, the present invention concerns a method for using a computer apparatus which has 1) an input device for receiving input data, 2) a memory device

20   connected to the input device for storing the input data, 3) a processor connected to the memory device which is programmed to perform operations upon stored data to produce output data, and 4) an output device connected to the processor for displaying the output data, for evaluating a

menu of plans, from which participants (consumers) select and under each plan a provider

(sponsor) supplies each selecting consumer's utilization quantity of products and payments are

made by the consumer, such that the provider's estimated cost is equal to a predetermined target

cost, comprising:

5   inputting proposed values corresponding to each plan design option in each plan;

inputting the unit cost of supplying each product;

estimating the utilization quantity of each product for each consumer;

predicting the plan selected by each consumer;

calculating the estimated cost by accumulating the costs of supplying each

10 consumer under the consumer's selected plan, whereby the cost of supplying each consumer is

the sum of the unit cost of each product multiplied by the consumer's estimated utilization

quantity of that product, less the payments made by the consumer;

and

outputting the estimated cost.

15   Broadly, in another aspect, the present invention concerns a computer based

system for determining the values corresponding to each plan design option of a plurality of

plans, from which a plurality of consumers may each select and under each of which plans a

provider supplies each selecting consumer's utilization quantity of one or more products, such

that the estimated cost to the provider of supplying the products approximates a predetermined

20 target cost, comprising:

an input device for receiving input data, including data representing proposed

initial values corresponding to each plan design option in each plan and the unit cost of

supplying each product;

a memory device connected to the input device for storing the input data,

5   a processor connected to the memory device which is programmed to perform

operations upon stored data, including estimating the utilization quantity of each product for each

consumer, predicting the plan selected by each consumer, and calculating the estimated cost of

supplying each consumer under the consumer's selected plan by accumulating the unit cost of

each product multiplied by the consumer's estimated utilization quantity of that product and

10   subtracting any payments made by the consumer, to produce output data;

an output device connected to the processor for displaying the output data;

and

means for adjusting the plan design option values according to the difference

between the target cost and the estimated cost.

15   Broadly, in another aspect, the present invention concerns a method for

using a computer apparatus for evaluating one or more plans under which a provider supplies the

consumer's utilization quantity of one or more products comprising:

inputting values corresponding to each plan design option in each plan;

estimating the utilization quantity of each product for the consumer;

20   calculating the cost to the consumer for each plan by accumulating the

transactional cost to the consumer for each product plus any periodic payments made by the

consumer; and

outputting the calculated cost.

Other advantages, features, and aspects of the present invention are discussed

below.

BRIEF DESCRIPTION OF THE DRAWINGS

5   A full and enabling disclosure of the present invention, including the presently

preferred mode thereof, to one of ordinary skill in the art, is set forth more particularly in the

remainder of the specification, including reference to the accompanying drawings, in which:

FIG. 1 is a flow chart of the method of the present invention.

FIG. 2 is a flow chart illustration of the cost analysis function of the present

10 invention based upon minimizing the cost of participation for each participant.

FIG. 3 is a flow chart illustration of the cost analysis function of the present

invention based upon population segmentation.

FIG. 4 is a flow chart illustration of the calculation of the annual variable cost to

the sponsor of participation in a selected plan for a given participant.

15   FIG. 5 is a flow chart illustration of the calculation of the annual cost to a

participant for participation in a plan based upon the participant's utilization history.

FIG. 6 is an illustration of the system of the present invention.

The drawings are provided for illustrative purposes only and should not be used to

unduly limit the scope of the invention.

20   ## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

It is to be understood by one of ordinary skill in the art that the present discussion

is a description of exemplary embodiments only, and is not intended as limiting the broader

aspects of the present invention, which broader aspects are embodied in the exemplary constructions.

Although the present invention is described herein within the context of the preferred embodiment relating to the development and evaluation of prescription drug benefit plans, it will be recognized by those skilled in the art that the invention is not limited to prescription drug plans but, rather, the present invention is applicable to any types of benefit and insurance plans, such as medical, health, dental, vision, pharmaceutical and other benefit and insurance plans covering life, casualty, liability and pet health care expenditures.

The present invention is preferably implemented with a computer apparatus which has 1) an input device for receiving input data, 2) a memory device connected to the input device for storing the input data, 3) a processor connected to the memory device which is programmed to perform operations upon stored data to produce output data, and 4) an output device connected to the processor for displaying the output data. The operation of the preferred embodiment of the invention commences with the sponsor's development of a plan menu by selecting from a predetermined option set of one or more plans having predetermined plan design options or from open plan formats offering the sponsor the ability to select one or more plan design options and to establish numerical parameters associated with the plan design options, such as maximum benefit coverage levels. The fixed feature plan option set of a preferred embodiment of the present invention may comprise a finite number of plans, each having unique predetermined plan design options and associated benefit levels. For example, a prescription drug benefit plan may comprise plan design options and associated benefit levels which preferably include: periodic (monthly) fixed contribution payment amount, periodic deductible amount, transactional

copayment amount, coinsurance payment percentage, stop loss limitation, benefit cap limitation,

prescription drug formulary coverage, prescription drug rebate applicability, retail network

availability, mail service option, and generic prescription drug coverage. As known in the field

of benefit plan development, these terms are defined below:

5 monthly fixed contribution payment - a monthly fee paid by the participant

periodic deductible - an expenditure level below which the cost of

the covered prescription drugs is borne by the participant (in some

plans, until the deductible amount is met, the participant is

extended the benefit of purchasing covered prescription drugs at

10 the same price as paid by the sponsor)

transactional copayment - the amount paid by the participant in the

purchase of a given prescription drug

coinsurance payment percentage - the proportional amount of the cost of a

given prescription drug paid by the participant

15 stop-loss - a limitation on the out-of-pocket expenses for the participant,

above which level the plan sponsor bears all costs

benefit cap - a benefit maximum, limiting the amount the plan will provide

to a participant or the participant and covered dependents, such that

the participant bears all costs above the plan's cap

20 prescription drug formulary coverage - plan benefits which apply to

specific predetermined prescription drugs for the treatment of a

given condition

prescription drug rebate applicability - rebates which apply to purchases of

specific prescription drugs

retail network availability - plan benefits which apply to purchases made

at retail pharmacies

5   mail service option - plan benefits which apply to purchases of

prescription drugs delivered by mail from predetermined pharmacy

suppliers

generic prescription drug coverage - plan benefits which apply to

purchases of generic prescription drugs

10   Additionally or alternatively, the open plan template of a preferred embodiment of

the present invention may comprise provisions for the sponsor to incorporate various plan design

options, and, if applicable, to establish associated numerical parameters for the plan design

options, such as monthly fixed contribution payment amount, periodic deductible amount,

coinsurance payment percentage and transactional copayment amount.

15   The input process for plan design of a preferred embodiment of the present

invention may be accomplished by a potential sponsor, participant or other user through a variety

of input devices including, for example, keyboard, keypad, graphical user interface ("GUI"),

Internet access, e-mail, voice recognition program, telephone, cellular telephone, pager, PDA, or

other voice or data input device, including, for example, scanning information from a source

20   document. The output data and plan menu development options of a preferred embodiment of

the present invention may be conveyed to the potential sponsor or participant through a variety of

output device media including, for example, computer monitor, GUI, Internet, e-mail, CDROM,

cellular telephone display, PDA display, printout, facsimile, or other method of image, data or document transmission. Security measures may be implemented as necessary to ensure confidentiality of data, for example, data relating to plan design options, participant identity and medical history.

5   In a preferred embodiment of the present invention, once the sponsor's proposed plan design options comprising its plan menu have been defined, they are preferably assembled by the processor into a proposed plan design. Upon completion, each proposed plan design is preferably presented to the sponsor for review and modification, if desired. Once the sponsor is satisfied with the proposed plan design, the sponsor may approve the plan design for inclusion in 10   the proposed plan menu. This process of plan development of a preferred embodiment of the present invention is continued until the sponsor has developed a desired number of plan designs to comprise the proposed plan menu of a preferred embodiment of the present invention. Once the sponsor approves the composition of its proposed plan menu, the cost analysis process is initiated by the processor.

15   The cost analysis process of a preferred embodiment of the present invention involves 1) the determination of each individual participant's preference of plan from the sponsor's proposed plan menu (or election not to participate in plans offered by the sponsor) and 2) the calculation of the aggregate cost to the sponsor of each participant's projected prescription drug utilization under that participant's preferred plan.

20   In a preferred embodiment of the present invention, the initial step in the cost analysis process, the determination of the individual participant's preference of plan from the sponsor's proposed plan menu, can be based upon the presumed objective of minimizing costs to

the participant. Using this approach, the plan option offering the lowest cost to the participant for the participant's projected prescription drug utilization is predicted as the participant's selected plan. Of course, additional or alternative participant criteria, including, for example, a preference for a plan offering specific plan design options, such as, network availability or

5   formulary availability, may be used to predict plan selection.

Additionally, survey data obtained from each individual participant, or from a statistical sample of the given participant population relating to plan preference from the selections available in the sponsor's proposed plan menu may be used to predict plan selection. Alternatively, the individual participant's preference within the sponsor's proposed plan menu

10   may be inferred from survey data of the individual participant or a statistical sample of the given population reflecting general plan preference criteria or from selections made from a hypothetical plan menu. Similarly, the individual participant's preference within the sponsor's proposed plan menu may be inferred from data reflecting historical plan selection decisions made by the given participant population.

15   Further, plan selection can be predicted by evaluation of the selection preferences of a population segment having demographic, medical or attitudinal characteristics from plan menus comprising alternatives with plan design options identical or similar to those in the sponsor's proposed plan menu. Similarity between this analogous population segment and the participant population can be determined on the basis of demographic, medical or attitudinal

20   characteristics, including age, gender, family size, income, occupation, residence characteristics, lifestyle and prescription drug usage.

Once a preferred plan has been identified for each participant in a preferred

embodiment of the present invention, each participant's projected prescription drug utilization

quantity under that respective participant's preferred plan can preferably be used to derive the

sponsor's cost for covering that participant. The invention can accurately determine projected

5   prescription drug utilization by employing, for example, historical utilization data from the given

participant population or from analogous population samples having similar demographic,

medical or attitudinal characteristics. In making these projections, the participant's utilization of

prescription drugs may be assumed to be invariable over time. For plans in which the benefits to

the participants may extend to spouses and/or dependents, the projected utilization may

10   encompass all prescription drugs used by the participant and all others covered on behalf of the

participant. If desired, adjustments to expected utilization can be made for expected future

utilization variations based upon user surveys that may inquire into relevant factors such as, for

example, increased or decreased family size or changes in medical conditions requiring

prescription drug treatments. Additionally, if appropriate, adjustments to expected utilization

15   can be made to reflect a predicted plan menu selection which will result in increased or decreased

participant costs for historically utilized prescription drugs in circumstances where future

utilization is expected to vary with respect to the portion of the cost of the prescription drug

borne by the participant. Also, if desired, adjustments to projected prescription drug costs can be

made to reflect trends which will result in increased or decreased future costs to participants

20   and/or sponsors, such as aging of participants, medical advancements and availability of generic

equivalents.

Once the cost for each participant's participation in the program has been

determined in a preferred embodiment of the present invention, these costs can be preferably

aggregated to arrive at the sponsor's cost for providing the plans to all participants. At this point,

the projected sponsor's cost can preferably be displayed and/or provided to the sponsor or other

5   user through the output device. If desired, changes to the proposed plan menu can be

implemented by the user through the input device to obtain a projected cost more consistent with

the sponsor's objectives, and the cost analysis process can be repeated to verify the expected cost

of the modified proposed plan menu. Alternatively, the means for adjusting the values may

comprise a computer processor step for automatically adjusting the values that correspond to the

10   plan design options according to the difference between the target cost and the calculated

estimated cost, such that the estimated cost approaches or equals the target cost.

FIG. 1 is a flow chart illustrating the method of one embodiment of the present

invention. In Step **20** the available plan design options and associated numerical parameters are

displayed for the potential sponsor. These plan design options may include copay/drug

15   formulary criteria, network accessibility, mail service, deductible amount, rebate qualification,

administrative fees and fixed contribution amount. In Step **22**, the potential sponsor designs the

plan by providing inputs through the input device to select from among the plan design options

and, where applicable, establishing the associated parameters incorporated in a plan to be offered

as a selection within the plan menu. Once the potential sponsor has designed the desired number

20   of plans sufficient to complete the menu, the specifications for each plan are output by the output

device for review and approval or modification by the sponsor (Step **24**).

Upon review of the plan design options, if further modifications are desired, the sponsor has the option in Step **26** to return to Steps **20** and **22** to alter the plan design options of one or more of the plans. Alternatively, if the plans are deemed acceptable, the sponsor may process the plan menu through the cost analysis function in Step **28**. Two alternative approaches

5   to this cost analysis function (Step **28**) are further detailed in FIGS. 2 and 3. Upon completion of the cost analysis function (Step **28**), the resulting sponsor cost is displayed for the sponsor (Step **30**). If the sponsor cost is deemed unsatisfactory by the sponsor (Step **32**), one or more of the plans comprising the menu can be revised (Steps **20** and **22**) for further cost analysis (Step **28**). Alternatively, if the sponsor cost is deemed acceptable (Step **32**), the plan menu can

10   be finalized (Step **34**) for transmission to the participant population for evaluation and acceptance.

FIG. 2 is a flow chart illustration of one approach for performing the cost analysis function of the present invention based upon minimizing the total cost to each participant of purchasing prescription drugs. This approach assumes that each participant will select the plan

15   from the menu which offers the lowest cost to the participant for satisfying the participant's historical prescription drug utilization requirements. As illustrated in FIG. 2, the proposed plan menu is input into the cost analysis function (Step **36**). Next, in Step **38**, the utilization history for the participant population having a total number of p members is input. In Step **40** the value of n, the participant reference number, is initialized at zero and in Step **42**, the value of "total

20   variable cost" is initialized to zero. In Step **44** the participant reference number is incremented by one and in Step **46** the annual cost to participant reference number n for participating in each plan offered on the plan menu is calculated based upon data representing participant n's

historical utilization of types and quantities of prescription drug products. The participants'

utilization histories of prescription drug products may be obtained from records of prescription

utilization under previous benefit plans or through data obtained from the individual participants

in response to survey questions. This cost determination process (Step **46**) is described in greater

5   detail in FIG 5.

In Step **48** the plan option having the lowest cost to the participant is predicted as

the plan selection for participant n based upon the presumed objective of the participant of

minimizing costs. Next, in Step **50** the annual variable cost to the plan sponsor for participant

n's participation in the selected plan is calculated. This cost determination process (Step **50**) is

10   described in greater detail in FIG 4. In Step **52** the amount of annual fixed contributions

collected by the sponsor from participant n for participation in the selected plan is calculated. In

Step **54** this amount of fixed contributions collected is subtracted from the annual variable cost to

the participant to determine the sponsor's variable cost for participant n.

In Step **56**, the total net cost to the sponsor for each successive individual

15   participant within the given participant population is accumulated. At Step **58** the cost

determination function is reinitiated for each member in the participant population, until

completion of the variable cost computations for all p participants. At Step **60**, the total variable

cost for all members of the participant population to the sponsor is added to the administration

cost for the given plan menu to determine the total cost of offering the plan menu. In Step **62**,

20   the total menu cost is output through the output device.

Another approach to predicting participant choices involves categorizing the

participant population into segments according to demographic, medical or attitudinal

characteristics. Demographic characteristics include, for example, age, gender, family size, income, occupation, residence characteristics and lifestyle. Medical characteristics relate to physical conditions and disorders, such as alcohol, tobacco or drug use, genetic disposition for medical disorders, occupational environment and prescription drug usage. Attitudinal

5   characteristics relate to health care preferences and attitudes towards health care management preferences, such as whether the participant strictly relies upon advice of health care professionals, or whether the participant prefers to independently research and decide individual health care issues.

Once the participant population segments are defined, samples from each segment

10   can be tested for specific preferences among predetermined plan menu choices and/or for more general preferences for plan design options, such as indicated by sensitivity analyses or trade-off analyses, from which responses to specific plan choices may be extrapolated. The results of this analysis of each segment's plan menu preferences may be expressed in a plan selection probability distribution for that segment.

15   By correlating each of the p members within the participant population to the most appropriate segment and then to the corresponding plan selection distribution for that segment, a predicted plan selection can be determined for each participant. By computing and summing the cost of sponsoring the predicted plan for each participant based upon that participant's historical prescription drug utilization, the sponsor's cost for the entire participant

20   population can be determined. The sponsor's total cost may be expressed as a probability distribution curve, a numerical range with statistical confidence levels, or in other statistical formats.

As an alternative to individual historical utilization data, samples from each

segment can be surveyed to determine a probability distribution of prescription drug utilization

for each member of that segment, from which the sponsor's cost for participants within the

segment may be determined.

5   As illustrated in FIG. 3, this population segmentation cost determination model

commences with Step **64** input of the plan menu. At Step **66** demographic, medical and/or

attitudinal characteristic data and the utilization history data for the participant population are

input using the input device. In Step **68** the demographic, medical and/or attitudinal

characteristic data for the population is analyzed to determine criteria by which the population

10   may be divided into segments comprised of participants with similar prescription drug use

characteristics. In Step **70** the participant population is divided into segments according to the

criteria identified in Step **68**. Next, in Step **72** sample groups from each participant population

segment are surveyed for determination of benefit plan preferences which may be attributed to

the entire population segment and data reflecting these preferences are input. This sampling

15   procedure can be accomplished using a variety of media, including Internet, e-mail, automated

telephone survey with voice recognition capability, questionnaire forms and telephone or

personal interviews. Using the data obtained in this process, in Step **74** preferences in each

population segment for particular plan design options are inferred, along with a determination of

the segment's sensitivity to hypothetical modifications of the plan design options. As in Steps **46**

20   through **62** of the cost minimization demand model depicted in FIG. 2, Steps **82** through **98**

involve the calculation of the total cost to the sponsor for providing the menu to each of the P

members of the participant population. In Step **82** the individual participant n is identified as

having common characteristics with a population segment and attributed plan selection

objectives, upon which a plan selection from the menu for participant n can be predicted in

Step **84**. Steps **86** through **98** of FIG. 3 involve the same operations as Steps **50** through **62**,

respectively, of FIG. 2.

5   FIG. 4 illustrates in greater detail the flowchart for the calculation of the annual

variable cost of the selected plan for a given individual participant based upon the predicted plan

selection for that participant (Step **86** of FIG. 3). As illustrated in FIG. 4 this computation begins

with the input of the identification of the prescription drugs which are covered by the predicted

plan selection in Step **100**. Next, values for the average wholesale price for the covered

10   prescription drugs, along with values for the retail generic discount, mail generic discount, retail

brand discount, mail brand discount, retail and mail dispensing fees, retail and mail

administration fees and brand name rebate are input in Step **102**. In Step **104** the "remaining

deductible" variable is initialized at the value for the required deductible amount for the selected

plan. In Step **106** the values for the index number n of the particular prescription drug used by

15   the participant and for the variable which accumulates the total cost to the sponsor for this

participant's participation in the given plan are set at zero. In Step **108** each of the p prescription

drugs utilized by the given participant are identified, along with the annual usage quantity of the

prescription drug and the historical method of delivery utilized by the participant for the

particular prescription drug.

20   In Step **110** the value of the participant's prescription drug number n is

incremented by one. At Step **112** prescription drug n is compared against the list of prescription

drugs carried by the plan, and if not covered, no cost is incurred by the sponsor, and hence

processing of the next prescription drug on the participant's usage list is commenced at Step **110**.

Alternatively, if the given prescription drug n is covered by the plan, the processing proceeds

through the decision tree at Step **114** to the appropriate alternate branch for generic prescription

drugs or brand name prescription drugs commencing at Steps **116** or **118**, respectively. In

5   Steps **116** and **118** the average wholesale price for the prescription drug n is determined from the

input values. Next, corresponding decision trees at Steps **120** or **122** direct the processing to

appropriate program branches for computation of prescription drug costs for retail sale or mail

delivery. These decision trees direct the processing through the applicable subroutine in

Steps **124, 126, 128** and **130**, which correspond to the prescription drug cost computation

10   subroutines for retail sale of a generic prescription drug, mail delivery of a generic prescription

drug, retail sale of a brand name prescription drug and mail delivery of a brand name prescription

drug, respectively. In each case, Cost$_n$, the annual costs of providing the prescription drug n to

the participant, is determined by multiplying the annual usage quantity of the prescription drug

by the average wholesale price for the prescription drug as adjusted by appropriate values for the

15   applicable type of discount and the addition of the per transaction dispensing and administration

fees.

In Steps **132** through **140** the effect of the participant's remaining deductible upon

the sponsor's cost of the prescription drug is evaluated. In Step **132** the net cost of the

prescription drug n to the sponsor is calculated by subtracting the participant's remaining

20   deductible from the previously computed cost of the prescription drug. In Step **134**, if the cost of

the prescription drug n was less than the participant's remaining deductible, then the entire cost

of prescription drug n is borne by the participant. In this case the remaining deductible value is

decremented by the amount paid by the participant for prescription drug n in Step **136** and the

sponsor's total cost remains unchanged. In this exemplar benefit plan, if the participant has not

satisfied the plan's deductible amount, the participant is extended the benefit of purchasing the

covered prescription drug at the same price, average wholesale price less appropriate discount

5   plus the per transaction dispensing and administration fees, as paid by the sponsor.

Alternatively, if the cost of the prescription drug exceeds the remaining deductible, such that the

participant's entire deductible requirement has been satisfied, the value for the remaining

deductible is set to zero in Step **138**, and in Step **140** the sponsor's total variable cost

accumulator variable is increased by the net cost of prescription drug n, that is cost n less any

10   remaining deductible which was satisfied by the participant in the purchase of prescription

drug n. Next, in Step **142**, if the currently processed prescription drug n was not the final

prescription p on the participant's utilization list, the cost calculation processing is repeated

commencing from Step **110**. Alternatively, if the processed prescription drug was the final

prescription drug on the participant's list, thus having the index number of p, the processing

15   proceeds to Step **144** where the total variable cost to the sponsor of the participant's prescription

drug purchases is compared to the plan cap amount. As is know by those skilled in the art, the

cap is an upper limit on the annual costs to the sponsor for an individual participant.

Accordingly, if the calculated total variable cost exceeds the cap, its value is reduced to the cap

amount. In Step **146** the total variable cost for the participant is output.

20   FIG. 5 illustrates in greater detail the processing steps depicted in Step **46** of FIG.

2 for the calculation of the annual cost to the participant for each alternative plan choice on the

available menu, based upon that participant's utilization history. As outlined in FIG. 5, the

processing commences at Step **148** with the input of the identification of prescription drugs

covered by the particular plan under consideration and the retail cost to participants of

prescription drugs not covered. In Step **150,** the values of the plan for the deductible amount, the

retail generic copayment, the mail generic copayment, the retail prescription drug brand

5   copayment, the mail brand prescription drug copayment, along with values for the retail generic

discount, mail generic discount, retail brand discount, mail brand discount and the participant's

fixed contribution payment amounts are input. In Step **152** the variable corresponding to the

participant's remaining (unsatisfied) deductible amount is initialized at the amount of the annual

deductible required by the plan under consideration. Next, in Step **154** the index number of the

10   prescription drug under consideration, n, is initialized at zero, along with the variables

corresponding to the total cost to the participant for each of the p prescription drugs utilized (total

cost) and the total retail cost to the participant for prescription drugs not covered by the plan

(total retail). In Step **156** data reflecting the identification of each of the p prescription drugs

utilized by the participant, along with the annual usage quantity and the method of delivery for

15   each such prescription drug, are input.

In Step **158** the value of the participant's prescription drug index number under

consideration, n, is incremented by one. At Step **160** prescription drug n is compared against the

list of prescription drugs covered by the plan. If prescription drug n is not covered, the

participant must pay for n, and accordingly, in Step **162** the total retail cost paid by the

20   participant is increased by the retail cost of n. Following Step **162**, processing of the next

prescription drug on the participant's usage list is commenced at Step **158**. Alternatively, if the

given prescription drug n is covered by the plan, the processing proceeds through the decision

tree at Step **164** to the appropriate alternate branch for generic prescription drugs or brand name

prescription drugs commencing at Step **166** or **168**, respectively. In Steps **166** and **168**,

corresponding decision trees direct the processing through the applicable subroutine in

Steps **170, 172, 174** and **176**, which correspond to determinations of the copayment amount

5   (cost$_u$) paid by the participant for each of 1) retail sale of a generic prescription drug, 2) mail

delivery of a generic prescription drug, 3) retail sale of a brand name prescription drug, and 4)

mail delivery of a brand name prescription drug, respectively.

Once the participant's copayment for the prescription drug purchase is determined

based upon its classification as a generic or a name brand prescription drug and as a retail sale or

10   by mail delivery in Step **178**, this copayment amount is compared to the remaining deductible

required to be paid by the participant to trigger the payment of benefits under the plan. If the

copayment amount is less than the participant's remaining deductible (Step **178**), such that the

participant would be responsible for the total cost of the prescription drug, the program proceeds

to Step **180** wherein the participant's total cost register variable is incremented by the amount of

15   the prescription drug cost to the participant. In this exemplar benefit plan, if the participant has

not satisfied the plan's deductible amount, the participant is extended the benefit of purchasing

the covered prescription drug at the average wholesale price less appropriate discount plus the

per transaction dispensing and administration fees, the same price as would be paid by the

sponsor.

20   Subsequently in Step **182**, the remaining deductible amount is decremented by the

amount paid by the participant for the prescription drug. Alternatively, if the copayment amount

is greater than or equal to the remaining deductible (Step **178**), then the total cost register is

incremented by the remaining deductible in Step **184**, and the remaining deductible register is set

at zero in Step **186**. At Step **188** if the index number of the prescription drug under consideration

is not equal to p, the index number of the last prescription drug on the participant's usage list,

then the processing continues at Step **158** to consider the next prescription drug on the

5   participant's list. Conversely, if the index number of the prescription drug for which

computation has just completed is equal to p, the last number on the participant's prescription

drug list, the processing proceeds to Step **190** wherein the total cost to this participant is

compared to the stop-loss amount of the plan, if applicable. As is know by those skilled in the

art, stop loss is a feature of some benefit plans which provides an upper limit of out-of-pocket

10   expenses for the participant. Thus, if the participant's cost has reached the maximum

expenditure level, beyond which the plan sponsor bears all costs, the total cost is maximized at

the stop loss amount.

At Step **192**, the total cost is incremented by the amount of annual fixed

contributions required to be paid under the plan under consideration. At the completion of the

15   process in Step **194**, the total cost to the participant under the given plan is output.

The process outlined in FIG. 5 can also be used by a participant or prospective

participant to estimate the cost of participating in one or more plans having given plan design

option values. Using information provided by this cost estimation feature, a participant or

prospective participant may select and/or modify plan design options and their associated values

20   in order to design a benefit plan specifically tailored for the individual participant. This process

of modifying plan design option values to obtain a plan having a predetermined target cost to the

participant also may be conducted automatically through a computer processing function.

FIG. 6 is an illustration of the system of one embodiment of the present invention. In FIG. 6, the computer apparatus comprises an input device **196** for receiving input data, a memory device **198** connected to the input device **196** for storing the input data, a processor **200** connected to the memory device **198**, which is programmed to perform operations upon stored

5   data to produce output data, and 4) an output device **202** connected to the processor **200** for displaying the output data.

While preferred embodiments of the invention and preferred methods of practicing the same have been shown and described herein, persons of ordinary skill in the art will recognize and appreciate that the invention encompasses and includes numerous

10   modifications and variations thereto without departing from the spirit and scope of the present invention. In addition, it should be understood, and persons of ordinary skill in the art will recognize, that aspects of the various preferred embodiments discussed herein may be interchanged or eliminated both in whole or in part. Furthermore, those of ordinary skill in the art will appreciate the foregoing description is by way of example only, and does not and is not

15   intended to limit the scope, nature and/or variations of the invention.